

What is claimed is:

1. A system for recording and storing a program broadcast in at least one channel, said system comprising:

one or more slave apparatus for setting a program for timer recording when said slave apparatus is

5 instructed to set the program for timer recording, and recording the program at a time when the program set for timer recording is broadcast; and

a master apparatus for selecting a slave apparatus to record a program such that a plurality of timer  
10 recording settings are not made at one time in one apparatus, when the program to be recorded is determined, and instructing the selected slave apparatus to set the program for timer recording.

15 2. A system according to claim 1, wherein said master apparatus has means for, if a slave apparatus to record a program cannot be selected, rearranging timer recording settings made in the slave apparatus to retain a slave apparatus to record a program, instructing the retained  
20 slave apparatus to change timer recording settings and set the program for timer recording, and instructing other slave apparatus in which timer recording settings are changed to change timer recording settings, and wherein each of said slave apparatus has means for, if instructed

25 to change timer recording settings by said master  
apparatus, changing timer recording settings.

3. A system according to claim 1, wherein said master  
apparatus has means for, if instructed to start recording  
a program without setting timer recording therefor,  
instructing a slave apparatus which has not recorded  
5 programs so far and whose period of time up to the  
recording start time of a first program set for timer  
recording is the longest, to start recording the program,  
and wherein each of said slave apparatus has means for, if  
instructed to start recording a program, immediately  
10 starting to record said program.

4. A system according to claim 1, wherein said master  
apparatus has means for, if instructed to start recording  
a program without setting timer recording therefor,  
rearranging timer recording settings made in the slave  
5 apparatus, increasing, as much as possible, a period of  
time up to the recording start time of a first program set  
for timer recording in either one of the slave apparatus,  
instructing the slave apparatus in which timer recording  
settings are changed to change timer recording settings,  
10 and instructing the slave apparatus whose period of time  
up to the recording start time has been increased as much  
as possible to start recording the program, and wherein  
each of said slave apparatus has means for, if instructed

15 to change timer recording settings by said master  
apparatus, changing timer recording settings, and, if  
instructed to start recording a program, immediately  
starting to record said program.

5. A system according to claim 1, wherein said master  
apparatus has means for, if instructed to start recording  
a program without setting timer recording therefor,  
selecting a slave apparatus which has not recorded  
5 programs so far and which has not made timer recording  
settings until the end time of a program instructed to  
start being recorded, and instructing the selected slave  
apparatus to start recording the program, and wherein each  
of said slave apparatus has means for, if instructed to  
10 start recording a program, immediately starting to record  
said program.

6. A system according to claim 1, wherein said master  
apparatus and each of said slave apparatus are connected  
to each other via a communication line, each of said slave  
apparatus has means for indicating a program set for timer  
5 recording by the slave apparatus to said master apparatus  
via said communication line, and said master apparatus has  
means for instructing the slave apparatus to set the  
program for timer recording via said communication line.

10047047 01502

7. A system according to claim 6, wherein each of said slave apparatus has means for transmitting a playback signal produced by playing back a program via said communication line to said master apparatus, and said master apparatus has means for outputting the program to an output device for displaying the program when the master apparatus has received the playback signal via said communication line.

8. A system according to claim 1, wherein said master apparatus comprises a computer.

9. A system according to claim 1, wherein said slave apparatus comprise respective add-on modules which can be incorporated in said master apparatus.

10. A system according to claim 1, wherein said slave apparatus comprise a desired number of software modules that can be executed by said master apparatus.

11. A system for recording and storing a program broadcast in at least one channel, said system comprising:  
one or more slave apparatus for determining whether the slave apparatus are capable of recording a program or not in response to an inquiry as to whether the slave apparatus are capable of recording the program, and, if the slave apparatus are capable of recording the program,

10 sending a corresponding response, setting the program for  
timer recording, and recording the program when a time to  
broadcast the program is reached; and

15 a master apparatus for, if a program to be recorded  
is determined, successively asking the slave apparatus  
about whether the slave apparatus are capable of recording  
the program until the response indicating that the slave  
apparatus are capable of recording the program is  
received, and, if said response is received from a slave  
apparatus, instructing the slave apparatus which has sent  
the response to set the program for timer recording.

12. A system according to claim 11, wherein said master  
apparatus has means for, if said response indicating that  
the slave apparatus are capable of recording the program  
is not received from any of the slave apparatus,  
5 rearranging timer recording settings made in the slave  
apparatus to retain a slave apparatus to record the  
program.

13. A system according to claim 11, wherein said master  
apparatus and each of said slave apparatus are connected  
to each other via a communication line, and said master  
apparatus has means for asking the slave apparatus about  
5 whether the slave apparatus are capable of recording the  
program.

205770 2402001

14. A system according to claim 13, wherein each of said  
slave apparatus has means for transmitting a playback  
signal produced by playing back a program via said  
communication line to said master apparatus, and said  
5 master apparatus has means for outputting the program to  
an output device for displaying programs when the master  
apparatus has received the playback signal via said  
communication line.

15. A system according to claim 14, wherein said master  
apparatus has means for displaying, on said output device,  
a list of programs stored in said slave apparatus in  
association with the slave apparatus and times at which  
5 the programs have been recorded, for the user to select a  
program to be played back from the list.

16. A system according to claim 14, wherein said master  
apparatus has a function to record and play back said  
program.

17. A system according to claim 11, wherein said master  
apparatus comprises a computer.

18. A system according to claim 11, wherein said slave  
apparatus comprise respective add-on modules which can be  
incorporated in said master apparatus.

19. A system according to claim 11, wherein said slave apparatus comprise a desired number of software modules that can be executed by said master apparatus.

20. A system for recording and storing a program broadcast on at least one channel, said system comprising:

a master apparatus; and

one or more slave apparatus;

5       said master apparatus comprising:

a first tuner for extracting a signal on an indicated channel from a received broadcast signal;

a first encoder for encoding the signal on said channel to generate program data;

10       a first memory for storing said program data;

a selector for selecting one of said program data read from said first memory and program data input from another device;

15       a decoder for decoding said program data input from said selector; and

a controller for grasping programs set for timer recording in each of all the apparatus, and, if a program to be recorded is determined, selecting an apparatus to record the program such that a plurality of timer recording settings are not made at one time in one apparatus, and, if the master apparatus is selected, extracting a channel on which the program is broadcast with said first tuner when a time to broadcast the program

20

10047047 01502

10047047 "0115022

is reached, generating program data of the program with  
25 said first encoder, and storing the program data in said  
first memory, and, if a slave apparatus other than the  
master apparatus is selected, instructing the selected  
slave apparatus to set the program for timer recording,  
and, if the program data of a program instructed by the  
30 user to be played back is stored in said first memory of  
the master apparatus, reading the program data from said  
first memory, and decoding the program data with said  
first decoder, and, if the program data of a program  
instructed by the user to be played back is stored in a  
35 slave apparatus other than the master apparatus,  
instructing said slave apparatus to play back the program,  
and decoding the program data input from said slave  
apparatus with said first decoder;

each of said slave apparatus comprising:

40 a second tuner for extracting a signal on an  
indicated channel from a received broadcast signal;  
a second encoder for encoding the signal on said  
channel to generate program data;  
a second memory for storing said program data; and  
45 a controller for extracting a channel on which a  
program set for timer recording is broadcast with said  
second tuner when a time to broadcast the program is  
reached, generating program data of the program with said  
second encoder, storing the program data in said second  
50 memory, reading the program data of a program instructed



by said master apparatus to be played back from said second memory, and transmitting the read program data to said master apparatus.

21. A system according to claim 20, wherein said slave apparatus comprise respective add-on modules which can be incorporated in said master apparatus.

22. A system according to claim 20, wherein said slave apparatus comprise a desired number of software modules that can be executed by said master apparatus.

23. An apparatus in a system for recording and storing a program broadcast on at least one channel, said apparatus comprising:

- a tuner for extracting a signal on an indicated
- 5 channel from a received broadcast signal;
- an encoder for encoding the signal on said channel to generate program data;
- a memory for storing said program data;
- a decoder for decoding said program data read from
- 10 said memory; and
- a controller for grasping programs set for timer recording in a plurality of apparatus including said apparatus itself, and, if a program to be recorded is determined, selecting an apparatus to record the program
- 15 such that a plurality of timer recording settings are not

made at one time in one apparatus, and, if said apparatus  
itself is selected, extracting a channel on which the  
program is broadcast with said tuner when a time to  
broadcast the program is reached, generating program data  
20 of the program with said encoder, and storing the program  
data in said memory, and, if an apparatus other than said  
apparatus itself is selected, instructing the selected  
apparatus to set the program for timer recording, and, if  
the program data of a program instructed by the user to be  
25 played back is stored in said memory of the apparatus  
itself, reading the program data from said memory, and  
decoding the program data with said decoder, and, if the  
program data of a program instructed by the user to be  
played back is stored in an apparatus other than the  
30 apparatus itself, instructing said other apparatus to play  
back the program, and decoding the program data input from  
the other apparatus with said decoder.

24. An apparatus according to claim 23, wherein said  
controller has means for, if an apparatus to record a  
program cannot be selected, rearranging timer recording  
settings made in the apparatus to retain an apparatus to  
5 record a program, instructing the retained apparatus to  
change timer recording settings and set the program for  
timer recording, and instructing other apparatus in which  
timer recording settings are changed to change timer  
recording settings.

10

25. An apparatus according to claim 23, wherein said controller has means for, if instructed to start recording a program without setting timer recording therefor, instructing an apparatus which has not recorded programs  
5 so far and whose period of time up to the recording start time of a first program set for timer recording is the longest, to start recording the program,

26. An apparatus according to claim 23, wherein said controller has means for, if instructed to start recording a program without setting timer recording therefor, rearranging timer recording settings made in the  
5 apparatus, increasing, as much as possible, a period of time up to the recording start time of a first program set for timer recording in either one of the apparatus, instructing the apparatus in which timer recording settings are changed to change timer recording settings,  
10 and instructing the apparatus whose period of time up to the recording start time has been increased as much as possible to start recording the program.

27. An apparatus according to claim 23, wherein said controller has means for, if instructed to start recording a program without setting timer recording therefor, selecting an apparatus which has not recorded programs so  
5 far and which has not made timer recording settings until

the end time of a program instructed to start being recorded, and instructing the selected apparatus to start recording the program.

28. An apparatus for recording and storing a broadcast program, said apparatus comprising:

a temporary memory for temporarily storing up to a predetermined amount of program data;

5 a permanent memory for storing program data selected by the user as program data to be permanently stored from among the program data stored in said temporary memory;

a recording controller for successively storing the program data of programs set for timer recording in said  
10 temporary memory, and partly deleting the program data recorded in said temporary memory in the past if the program data stored in said temporary memory exceeds said predetermined amount;

a saving controller for transferring the program  
15 data selected by the user as program data to be permanently stored from among the program data stored in said temporary memory to said permanent memory; and

a playback controller for playing back a program selected by the user from the programs whose program data  
20 have been stored in said temporary memory and/or said permanent memory.

10047047, 011502

29. An apparatus according to claim 28, wherein said recording controller has means for displaying a period of time for which the program data stored in said temporary memory are held, on an output device for displaying programs.

30. An apparatus according to claim 28, further comprising means for allowing the user to set memory capacities to said temporary memory and said permanent memory.

31. A system for recording a program broadcast on at least one channel, storing program data of the program, and playing back the program when instructed by the user, said system comprising:

one or more slave apparatus for automatically continuously recording a program on a predetermined channel and playing back the recorded program as instructed; and

a master apparatus for, when the user is to determine a channel on which each of the slave apparatus automatically continuously records a program and to select a program to be played back on the channel, displaying a list of programs recorded by all the slave apparatus in association with channels and times at which the programs are recorded, on an output device for displaying programs, and, if a program to be displayed is selected by the user

20579 440407

with a channel and a time, controlling the slave apparatus  
which has recorded the program to play back the program,  
and, if the user changes the channel to another channel,  
20 controls the slave apparatus which has recorded a program  
on the other channel at the same time as the former  
channel to play back the program on the other channel.

32. A system according to claim 31, wherein said slave  
apparatus comprise respective add-on modules which can be  
incorporated in said master apparatus.

33. A system according to claim 31, wherein said slave  
apparatus comprise a desired number of software modules  
that can be executed by said master apparatus.

34. A system for recording and storing a program  
broadcast on at least one channel, said system comprising:

a master apparatus; and

one or more slave apparatus;

5 said master apparatus comprising:

a first memory for storing the program data of  
recorded programs;

a first decoder for decoding program data read from  
said first memory; and

10 a controller for grasping programs recorded by each  
of all the apparatus, and, if the program data of a  
program instructed by the user to be played back is stored

10047047 041502

in the first memory of the master apparatus, reading the  
program data from said first memory, decoding the program  
15 data into a program signal with said first decoder,  
outputting the program signal to an output device for  
displaying programs, and, if the program data of a program  
instructed by the user to be played back is stored in a  
slave apparatus, instructing the slave apparatus to play  
20 back the program, outputting a program signal received  
from the slave apparatus to said output device, and, if  
the program data of a program which is highly likely to be  
played back by a subsequent control action of the user is  
stored in the first memory of the master apparatus,  
25 preparing the master apparatus to read the program data  
from said first memory and decode the program data with  
said first decoder, and, if the program data of a program  
which is highly likely to be played back by a subsequent  
control action of the user is stored in a slave apparatus,  
30 instructing the slave apparatus to prepare said slave  
apparatus to play back the program; and  
each of said slave apparatus comprising:  
a second memory for storing said program data;  
a second decoder for decoding the program data read  
35 from said second memory into a program signal; and  
a controller for reading the program data of a  
program instructed by said master apparatus to be played  
back from said second memory, decoding the program data  
into a program signal with said second decoder,

40 transmitting the program signal to said master apparatus,  
reading the program data of the program instructed to be  
prepared for playback from said second memory, and  
preparing said second decoder to decode the program data.

35. A system according to claim 34, wherein said slave  
apparatus comprise respective add-on modules which can be  
incorporated in said master apparatus.

36. A system according to claim 34, wherein said slave  
apparatus comprise a desired number of software modules  
that can be executed by said master apparatus.

37. An apparatus in a system for recording and storing a  
program broadcast on at least one channel, said apparatus  
comprising:

- 5 a memory for storing the program data of recorded  
programs;
- a decoder for decoding program data read from said  
memory; and
- 10 a controller for grasping programs recorded by each  
of all apparatus of the system, and, if the program data  
of a program instructed by the user to be played back is  
stored in the memory of the apparatus itself, reading the  
program data from said memory, decoding the program data  
into a program signal with said decoder, outputting the  
program signal to an output device for displaying



15 programs, and, if the program data of a program instructed  
by the user to be played back is stored in an apparatus  
other than said apparatus itself, instructing the other  
apparatus to play back the program, outputting a program  
signal received from the other apparatus to said output  
20 device, and, if the program data of a program which is  
highly likely to be played back by a subsequent control  
action of the user is stored in the memory of said  
apparatus itself, preparing the apparatus itself to read  
the program data from said memory and decode the program  
25 data with said decoder, and, if the program data of a  
program which is highly likely to be played back by a  
subsequent control action of the user is stored in an  
apparatus other than the apparatus itself, instructing the  
other apparatus to prepare said other apparatus to play  
30 back the program.

38. An apparatus for controlling a plurality of  
broadcast recording apparatus each for, if instructed to  
set a program for timer recording, setting the program for  
timer recording, and recording the program when a time to  
5 broadcast the program set for timer recording is reached,  
said apparatus comprising:

means for selecting one of the broadcast recording  
apparatus to record the program such that a plurality of  
timer recording settings are not made at one time in one  
10 apparatus; and

means for instructing the selected broadcast recording apparatus to set the program for timer recording.

39. An apparatus according to claim 38, further comprising means for, if an apparatus to record a program cannot be selected, rearranging timer recording settings made in the apparatus to retain an apparatus to record a  
5 program, instructing the retained apparatus to change timer recording settings and set the program for timer recording, and instructing other apparatus in which timer recording settings are changed to change timer recording settings.

10

40. A system for recording and storing a plurality of units of data from data broadcast in units selected by a single tuner, said system comprising:

one or more slave apparatus for, if instructed to  
5 set a unit of data for timer recording, setting the data for timer recording, and recording the data when a time to broadcast the data is reached; and

a master apparatus for grasping data set for timer recording by said slave apparatus, and, if data to be  
10 recorded is determined, selecting one of the slave apparatus such that a plurality of timer recording settings are not made at one time in one apparatus, and

instructing the selected slave apparatus to set the data  
for timer recording.

15

41. A system according to claim 40, wherein each of said  
units comprises a transport stream.

42. A computer program for use in an apparatus in a  
system for recording and storing a program in at least one  
system, the apparatus having a tuner for extracting a  
signal in an indicated channel from a received broadcast  
5 signal, an encoder for encoding the signal on said channel  
to generate program data, a memory for storing said  
program data, and a decoder for decoding said program data  
stored in said memory, said computer program comprising:

a first instruction set for grasping programs set  
10 for timer recording in a plurality of apparatus including  
said apparatus itself, and, if a program to be recorded is  
determined, selecting an apparatus to record the program  
such that a plurality of timer recording settings are not  
made at one time in one apparatus:

15 a second instruction set for, if said apparatus  
itself is selected, instructing said tuner to extract a  
channel on which the program is broadcast when a time to  
broadcast the program is reached;

a third instruction set for instructing said encoder  
20 to generate program data of the program, and instructing  
said memory to store the program data;

205779 440400T 10047047 014500

a fourth instruction set for, if an apparatus other than said apparatus itself is selected, instructing the selected apparatus to set the program for timer recording;

25 a fifth instruction set for, if the program data of a program instructed by the user to be played back is stored in said memory of the apparatus itself, instructing said memory to read the program data, and instructing said decoder to decode the program data; and

30 a sixth instruction set for, if the program data of a program instructed by the user to be played back is stored in an apparatus other than the apparatus itself, instructing said other apparatus to play back the program, and instructing said decoder to decode the program data  
35 input from the other apparatus.

43. A computer program according to claim 42, further comprising:

a seventh instruction set for, if an apparatus to record a program cannot be selected, rearranging timer  
5 recording settings made in the apparatus to retain an apparatus to record a program; and

an eighth instruction set for instructing the retained apparatus to change timer recording settings and set the program for timer recording, and instructing other  
10 apparatus in which timer recording settings are changed to change timer recording settings.

2025-10-19 14:49:07

44. A computer program for use in an apparatus having a tuner for extracting a signal on a desired channel from a received broadcast signal, an encoder for encoding the signal on said channel to generate program data, and a  
5 memory for storing said program data, said computer program comprising:

a first instruction set for instructing said tuner to extract a channel on which a program instructed to be set for timer recording is broadcast when a time to  
10 broadcast the program is reached;

a second instruction set for instructing said encoder to generate program data of said program;

a third instruction set for instructing said memory to store said program data; and

15 a fourth instruction set for reading program data of a program instructed to be played back from said memory and transmit the program data.

45. A computer program according to claim 44, further comprising:

a fifth instruction set for changing timer recording settings when instructed to change the timer recording  
5 settings.

46. A computer program for use in a broadcast storage apparatus having a first memory and a second memory, said computer program comprising:

10047047-01502

5 a first instruction set for successively recording  
program data of programs set for timer recording in said  
first memory, and partly deleting the program data  
recorded in said first memory in the past if the program  
data stored in said first memory exceeds a predetermined  
amount;

10 a second instruction set for transferring program  
data selected by the user as program data to be  
permanently saved from among the program data stored in  
said first memory to said second memory; and

15 a third instruction set for playing back a program  
selected by the user from the programs whose program data  
have been stored in said first memory and/or said second  
memory.

47. A computer program for use in an apparatus in a  
system for recording and storing a program broadcast on at  
least one channel, said apparatus having a memory for  
storing program data of a recorded program and a decoder  
5 for decoding program data read from said memory, said  
computer program comprising:

a first instruction set for grasping programs set  
for timer recording in all apparatus of the system, and,  
if the program data of a program instructed by the user to  
10 be played back is stored in the memory of the apparatus  
itself, reading the program data from said memory,  
instructing said decoder to decode the program data into a

program signal, and outputting the program signal to an output device for displaying programs;

15        a second instruction set for, if the program data of a program instructed by the user to be played back is stored in an apparatus other than said apparatus itself, instructing the other apparatus to play back the program, and outputting a program signal received from the other  
20        apparatus to said output device;

         a third instruction set for, if the program data of a program which is highly likely to be played back by a subsequent control action of the user is stored in the memory of said apparatus itself, preparing the apparatus  
25        itself to read the program data from said memory and decode the program data with said decoder; and

         a fourth instruction set for, if the program data of a program which is highly likely to be played back by a subsequent control action of the user is stored in an  
30        apparatus other than the apparatus itself, instructing the other apparatus to prepare said other apparatus to play back the program.

48.    A computer program for use in an apparatus having a memory for storing program data of a recorded program and a decoder for decoding program data read from said memory into a program signal, said computer program comprising:

5        a first instruction set for reading from said memory the program data of a program instructed to be played back

and instructing said decoder to decode said program data into a program signal and transmit the program signal; and

10 a second instruction set for reading from said memory the program data of a program instructed to be prepared for playback and instructing said decoder to prepare the decoder to decode the program data.

49. A computer program for controlling a plurality of apparatus each for, if instructed to set a program for timer recording, setting the program for timer recording, and recording the program when a time to broadcast the  
5 program set for timer recording is reached, said computer program comprising:

a first instruction set for selecting one of the apparatus to record the program such that a plurality of timer recording settings are not made at one time in one  
10 apparatus; and

a second instruction set for assigning the selected apparatus to setting the program for timer recording.

50. A computer program according to claim 49, further comprising:

a third instruction set for, if an apparatus to record a program cannot be selected, rearranging timer  
5 recording settings made in the apparatus to retain an apparatus to record a program; and



a fourth instruction set for instructing the  
retained apparatus to change timer recording settings and  
set the program for timer recording, and instructing other  
10 apparatus in which timer recording settings are changed to  
change timer recording settings.

10047047 014502